

# APSSUN II

Convert Sun K/B and Mouse to PS/2 K/B and Mouse, 13W3 Sun video to HD15 VGA, with optional Foreign Language Capability

APSSUN II is designed to enable a user to operate Sun computers using a PS/2 keyboard, mouse, and VGA monitor. The APSSUN II will enable Sun computers to be integrated into PC based KVM switches and operated with a PS/2 keyboard, monitor and VGA monitor.

## APSSUN II Features

- Converts Sun K/B and mouse to PS/2 K/B and mouse
- Converts Sun 13W3 video to VGA HD15 video
- Programmable to any language specified by Sun OS
- Programmable to adopt language specific PS/2 keyboard
- Built-in COMBO keys emulate specific Sun keyboard key pads
- Programmable to re-map COMBO keys

## Installation

The APSSUN II is designed to be "plug-and-play". No special installation or set up is required.

**NOTE:** PS/2 mouse movements and button clicks are mapped to Sun mouse protocols.

## Programmable Language Specification Features

### Programming To Any Language Specific Keyboard Layout Code

During the Sun operating system boot-up process, Sun's operating system checks for a language specific keyboard layout code. APSSUN II will respond with the keyboard layout code that has been programmed by the user. APSSUN II supports Sun type 5 keyboards. The factory default of the APSSUN II keyboard layout code is "US5 Unix." Figure 1 lists all known language codes in Hex.

Language	Layout Code	Language	Layout Code
US5	21H	Korea5	2FH
US5 Unix (Default)	22H	Taiwan5	30H
France5	23H	Japan5	31H
Denmark5	24H	Canada Fr5	32H
Germany5	25H	Hungary5	33H
Italy5	26H	Poland5	34H
Netherland5	27H	Czech5	35H
Norway5	28H	Russia5	36H
Portugal5	29H	Latvia5	37H
Spain5	2AH	Turkey5	38H
Sweden5	2BH	Greece5	39H
Switzer Fr5	2CH	Estonia5	3AH
Switzer Ge5	2DH	Lithuania5	3BH
UK5	2EH	Canada Fr5 Tbits5	3FH

Figure 1. Keyboard Layout Code Table (Type 5)

**NOTE:** The Sun workstation manual may require a specific language layout code to be set.



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## Changing The APSSUN II Keyboard Layout Code

### 1. Open text editor window

- a) Press **<Ctrl + Keypad Del>**. Caps Lock LED will blink, indicating that APSSUN II is in layout code change mode.
- b) Open a text editor window on Sun workstation to monitor change. Text window will display:

```
Raritan Computer, Inc.  
APKMSUN keyboard layout code setup  VER 2.1  
CURRENT KEYBOARD LAYOUT CODE = 22H (US5 UNIX)
```

**NOTE:** If editor window does not display " VER 2.1" as shown above, it indicates that the **<Num Lock>** is not properly synchronize between keyboard and workstation. Press **<ESC>** to exit, then press **<Num Lock>** key twice to re-enter this mode again.

### 2. Enter change

- a) Type layout code desired and press **<Enter>**. (Any keyboard layout code in Figure 1 or any new code acceptable by Sun operating system is acceptable.)
- b) The APSSUN II buzzer will have long beeps for the first HEX number followed by short beeps for the second HEX number. For example, if new code is 3BH, three long beeps will be followed by 11 short beeps. Afterward, the caps lock LED will return to normal.
- c) The text window will display:

```
Current keyboard layout code = 3Bh  Lithuania5  
Setup end
```

### 3. Retain change

After keyboard layout code is changed APSSUN II will save the new keyboard layout code to memory. Reboot Sun workstation retain new keyboard layout code and invoke new language specific operating system.

**NOTE:** If display is incorrect, press **<ESC>** to exit, then press **<Num Lock>** key twice, to re-enter display.

## Mapping A Non-U.S. PS/2 Keyboard

The language set by designating the Sun keyboard layout code must be the same language specific to the PS/2 keyboard operating the Sun workstation. APSSUN II maps the PS/2 U.S. keyboard code to operate the Sun "US5 Unix" version of the operating system. If Sun operating system is changed to any other language (Figure 1) and run with that version of PS/2 keyboard, a few keys may not be remapped. APSSUN II enables redefining of these keys. Only a few keys will require redefining. For each language up to 16 keys can be redefined.

## Redefining Non-U.S. PS/2 Keyboard Keys

### 1. Identify which keys require redefinition

- a) Open a text editor window on Sun workstation
- b) Press keys in un-shifted and shifted modes in sequence to identify those keys requiring redefinitions

### 2. Open text editor window

- a) Press **<Ctrl + Keypad Ins>**. Num Lock LED will blink, indicating that APSSUN II is in key definition change mode.
- b) Text window will display:

```
Raritan Computer, Inc.  
APKMSUN key definition setup  VER 2.1  
Language is Japanese  
Current number of keys redefined is 8  
1. Type a key or shift + key to be redefined  
2. Select a Sun character using Up/Down keys or Left/Right keys  
Press Enter to confirm the selected code or Esc to exit
```

- c) If desired, press **<Delete>** key to clear all key redefinition for that keyboard layout code.

**NOTE:** If editor window does not display " VER 2.1" as shown above, this indicates that the **<Num Lock>** is not properly synchronize between keyboard and workstation. Press **<ESC>** to exit, then press **<Num Lock>** twice to re-enter this mode again.

3. Select key and its new designation

a) Press a key - shifted or not shifted - that needs to be redefined. Text window will display:

You have selected a key to be redefined.  
Please select a new character using Up/Down keys or Left/Right keys

b) The character displayed is selected key's current definition.

c) Press <↑> or <↓> keys to find a desired definition. Or press <←> or <→> keys to find a desired decimal scan-code.

**NOTE:** When using <←> or <→> keys, APSSUN II will display scan code in decimal or Shift decimal. For example: 2, 3, ... , Shift 2, Shift 3. The scan code for different languages can be found in directory: /usr/openwin/etc/keytables.

4. Enter and retain change

a) Press <Enter> to confirm selection. Or, to map this key to nothing (null), press <F5>, then <Enter> to confirm.

b) The text window will display:

The key is redefined to \*  
Please press next key or Esc to exit

5. Change another key or exit and save

a) Return to # 3 (Select key and its new designation), or press <ESC> to exit.

b) If <ESC> is pressed, text window will display:

Setup end

c) New key definitions will be saved in APSSUN II internal memory.

d) Num Lock LED will return to normal.

**NOTE:** Japanese PS/2 keyboard to Japanese Sun keyboard redefinition is provided in APSSUN II. There are 9 keys that are redefined for Japanese. If display is not correct on monitor, use <ESC> key to exit, then press <NumLock> twice to re-enter this mode again.

For example: Japanese SUN keyboard has a special key for Japanese/English switch , but, there is no such key on a Japanese PS/2 keyboard. A key can be defined on the PS/2 keyboard to emulate this key:

- Check the file /usr/openwin/etc/keytables/japan5.kt. Find the scan code of this key, which is 13 (0DH).
- Enter a desired key to emulate this key
- Press <←> or <→> to find scan code 13, and then confirm.

### Changing Default COMBO Key Definitions

The Sun keyboard consists of a special keypad to perform special functions in the Sun operating system environment. The PS/2 keyboard does not have a corresponding keypad, so APSSUN II will emulate these keys using a set of key combinations called COMBO keys.

COMBO Key	Sun Key	COMBO Key	Sun Key
Ctrl+Alt+F2	Again	Ctrl+Alt+F9	Find
Ctrl+Alt+F3	Props	Ctrl+Alt+F10	Cut
Ctrl+Alt+F4	Undo	Ctrl+Alt+F11	Help
Ctrl+Alt+F5	Front	Ctrl+Alt+F12	Mute
Ctrl+Alt+F6	Copy	Ctrl+Alt+Keypad *	Compose
Ctrl+Alt+F7	Open	Ctrl+Alt+Keypad -	Vol +
Ctrl+Alt+F8	Paste	Ctrl+Alt+Keypad +	Vol -

Figure 2. COMBO Key Default Definitions

All COMBO keys are defined using 3 keys being pressed simultaneously with <Ctrl> and <Alt> keys being 2 of these 3 keys. Acceptable keys as the third key are: F2, ... , F12 , KP \* , KP- , KP+ , A , B , ... , Z.

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**NOTE:** <Stop> key can be sent from PS/2 keyboard by pressing <Pause/Break>.

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1. Open text editor window

- a) Press <Ctrl + Keypad Enter>. Scroll Lock LED will blink, indicating that APSSUN II is in COMBO key definition change mode.
- b) Text window will display:

```
Raritan Computer, Inc.
APSSUN II COMBO key setup  VER 2.1
Current COMBO key setup:

Again ... F2
Props ... F3
Undo ... F4
Front ... F5
Copy ... F6
Open ... F7
Paste ... F8
Find ... F9
Cut ... F10
Help ... F11
Mute ... F12
Compose ... * on Keypad
Vol 2 ... - on Keypad
Vol 1 ... + on Keypad

Please select a key to be map

Again ... F2 ... enter a new key or Enter to keep it ... A
Props ... F3 ... enter a new key or Enter to keep it ...
```

2. Enter and retain change

- a) Press <F2> -<Z> to assign the <Again> key, or press <Enter> to keep current assignment, or press <Space> to remove COMBO key mapping for this key.
- b) Return to the next COMBO key to be assigned

3. Change another key or exit and save

- a) Repeat # 2 (Enter and retain change), or press <ESC> to exit. The new COMBO key definitions will be saved in APSSUN II internal memory.
- b) Upon exit Scroll Lock LED will return to normal.

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**NOTE:** If the editor window does not display " VER 2.1" as shown above, it indicates that the <Num Lock> is not properly synchronize between keyboard and workstation. Press <ESC> to exit, then press <Num Lock> twice to re-enter this mode.

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Ver 0.A JAN 2001  
K:\manu\apsnll-a.qxd



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